Public Utilities
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Public Utilities

July 31, 2014

Mr. John Morris, P.G.
Florida Department of Environmental Protection
Waste Permitting Section
13051 Telecom Parkway
Temple Terrace, FL 33637

RE: **Southeast County Landfill**
Laboratory Analytical Results
Initial Assessment Monitoring Plan
Report No. 46 – June 2014

Dear Mr. Morris:

The Hillsborough County Public Utilities Department (County) is pleased to provide the analytical results from the June 2014 sampling event conducted as part of the continuation of the Initial Assessment Monitoring Plan (IAMP). The IAMP was developed to address the potential impacts to groundwater from the sinkhole on the edge of Phase VI at the Southeast County Landfill (SCLF), which was discovered on December 14, 2010.

As part of the agreement between the County and Florida Department of Environmental Protection Southwest District Office (Department), three (3) upper Floridan/Limestone aquifer monitoring wells, designated as TH-72, TH-76 and TH-77 are sampled on a monthly schedule. Representative samples were collected from each of these three (3) monitoring wells on June 3, 2014 and analyzed for total dissolved solids (TDS), chloride, total ammonia, arsenic, iron, sodium, and five (5) field parameters. Each sample collected was analyzed by our contracted laboratory, Test America, Inc. The following paragraphs summarize the parameter specific results pertinent to the evaluation of potential water quality impacts from the sinkhole at the SCLF.

pH

pH was observed at 6.45 pH units in monitoring well TH-72, which is slightly below the Secondary Drinking Water Standard (SDWS) acceptable range of 6.5 - 8.5 pH units. The lower pH value observed is likely attributable to the grout material and fluids injected that occurred injected into the subsurface as part of the sinkhole stabilization and remediation processes. The pH values in down gradient monitoring wells TH-76 and TH-77 were both recorded at 7.47 pH units, which is consistent with the historical data and the water quality of the unaffected deep wells at the site.

Turbidity

Turbidity values in monitoring wells TH-72, TH-76, and TH-77 were recorded at 0.96, 16.8, and 0.88 Nephelometric Turbidity Units (NTUs), respectively. The turbidity values observed are consistent with the historical data for these wells.

Conductivity

The conductivity values observed in monitoring wells TH-72, TH-76, and TH-77 were 2,771, 423, and 464 micromhos per centimeter (umhos/cm), respectively. Monitoring well TH-72 is the closest location to the sinkhole, and continues to exhibit water quality impacts. The elevated conductivity observed is likely attributable to the waste in the throat of the sinkhole and the subsurface grouting processes conducted as part of the sinkhole remediation. Conductivity values in down gradient monitoring well TH-76 and TH-77 are relatively low and appear to be consistent with the unaffected deep wells across the site.

Total Dissolved Solids (TDS)

The TDS in monitoring well TH-72 was observed at 1,400 mg/l, which continues to be above the SDWS of 500 mg/l. Down gradient monitoring wells, TH-76 and TH-77 exhibited TDS values of 240 mg/l and 230 mg/l, respectively, which is consistent with the water quality of the unaffected deep wells across the site.

Chloride

Chloride was observed at 570 mg/l in monitoring well TH-72, which is above the SDWS of 250 mg/l. The elevated chloride value observed is likely attributable to waste in the sinkhole and the grouting activities. Chloride values in downgradient monitoring wells TH-76 and TH-77 were observed at 12 and 9.7 mg/l, which is consistent with the unaffected deep wells across the site.

Iron

Total iron concentrations in two (2) of the three (3) monitoring wells were observed above the SDWS of 0.3 mg/l. Monitoring wells TH-72 and TH-76 exhibited iron at 0.73 and 0.64 mg/l, respectively, and TH-77 exhibited iron at 0.19i mg/l. The elevated iron concentrations observed in these wells are consistent with their historical data sets, and as consistently discussed, the iron appears to be naturally occurring in some areas of the limestone formation, and/or the result of impacts from the past strip mining activities in area.

Sodium

Sodium was observed at a concentration of 220 mg/l in monitoring well TH-72, which is above the PDWS of 160 mg/l. The elevated sodium value is likely attributable to the waste in the sinkhole and/or the grouting activities. Sodium values in down gradient monitoring wells TH-76 and TH-77 were observed at 20 and 17 mg/l, which is consistent with the unaffected deep wells across the site.

Groundwater Elevations and Direction of Flow

On June 2, 2014, the County collected groundwater and surface water elevation data at sixty-five (65) locations across the site, including twenty eight (28) surficial aquifer wells, seven (7) upper Floridan (limestone) aquifer wells, twenty three (23) piezometers, and six (6) surface water sites. No significant changes to the patterns of flow in the surficial aquifer were noted in the data set, and the flow diagram provided is consistent with the observations over the extensive period of record. The elevations observed within the wells closest to the sinkhole indicate that flow patterns continue to be affected in that area, which has not be unexpected. However, the overall direction of flow within the surficial aquifer remains toward the west/northwest across the site.

A contour diagram of the upper Floridan / Limestone aquifer has been prepared for the general area around the sinkhole and is included with this submittal. This diagram was generated manually in AutoCad ™ utilizing only the three data points closest to the sinkhole. During this sampling event, the change in elevation between TH-72 and TH-76 is - 0.02 ft., and the change between TH-72 and TH-77 is + 0.16 ft. The diagram indicates that flow within the UFA in the area of the former sinkhole continues to be in a north/northwest direction, but at what appears to be a very slow rate. Based on the consistency of the direction of flow, the County has completed the installation of an additional upper Floridan / Limestone aquifer groundwater monitoring well down gradient of the sinkhole. This monitoring well, designated as TH-78, was sampled during the July IAMP event and the water quality results shall be included in the next monthly report.

Conclusions

The water quality observed in the June 2014 IAMP sampling event indicates that monitoring well TH-72, which is closest to the sinkhole, continues to exhibit impacts to water quality in the upper Floridan aquifer. The impacts observed include elevated pH, conductivity, TDS, chloride, iron and sodium. These impacts are not unexpected in the immediate vicinity of the sinkhole feature. Down gradient monitoring wells, TH-76 and TH-77 continue to exhibit good water quality with no evidence of impact from the sinkhole. Conductivity values, TDS, and chloride are all very low and consistent with the historical data set for the unaffected upper Floridan aquifer groundwater monitoring wells at the SCLF, which supports the position that the impacts from the sinkhole are limited in extent and do not appear to be migrating beyond the area close to the feature.

Recommendations

The County continues to move forward with implementation of the IAMP, which includes the monthly sampling of the four upper Floridan / Limestone aquifer groundwater monitoring wells, TH-72, TH-76, TH-77, and TH-78 and the quarterly sampling of the three surficial aquifermonitoring wells, TH-73, TH-74, and TH-75.

The County shall continue to evaluate any water quality changes in both the surficial and upper Floridan aquifer wells, and present the findings in the monthly IAMP reports.

The monitoring activities have been conducted for over three years and the consistency of the data set supports a significant reduction in the frequency. The County intends to propose this reduction in the number of monitoring wells sampled and the frequency of sampling and reporting, and based on our discussions, we believe that the IAMP wells should be included in the semi-annual sampling required by the Landfill Operations Permit No. 35435-022-SO/01. If the Department has any specific concerns with this position, we would welcome any guidance.

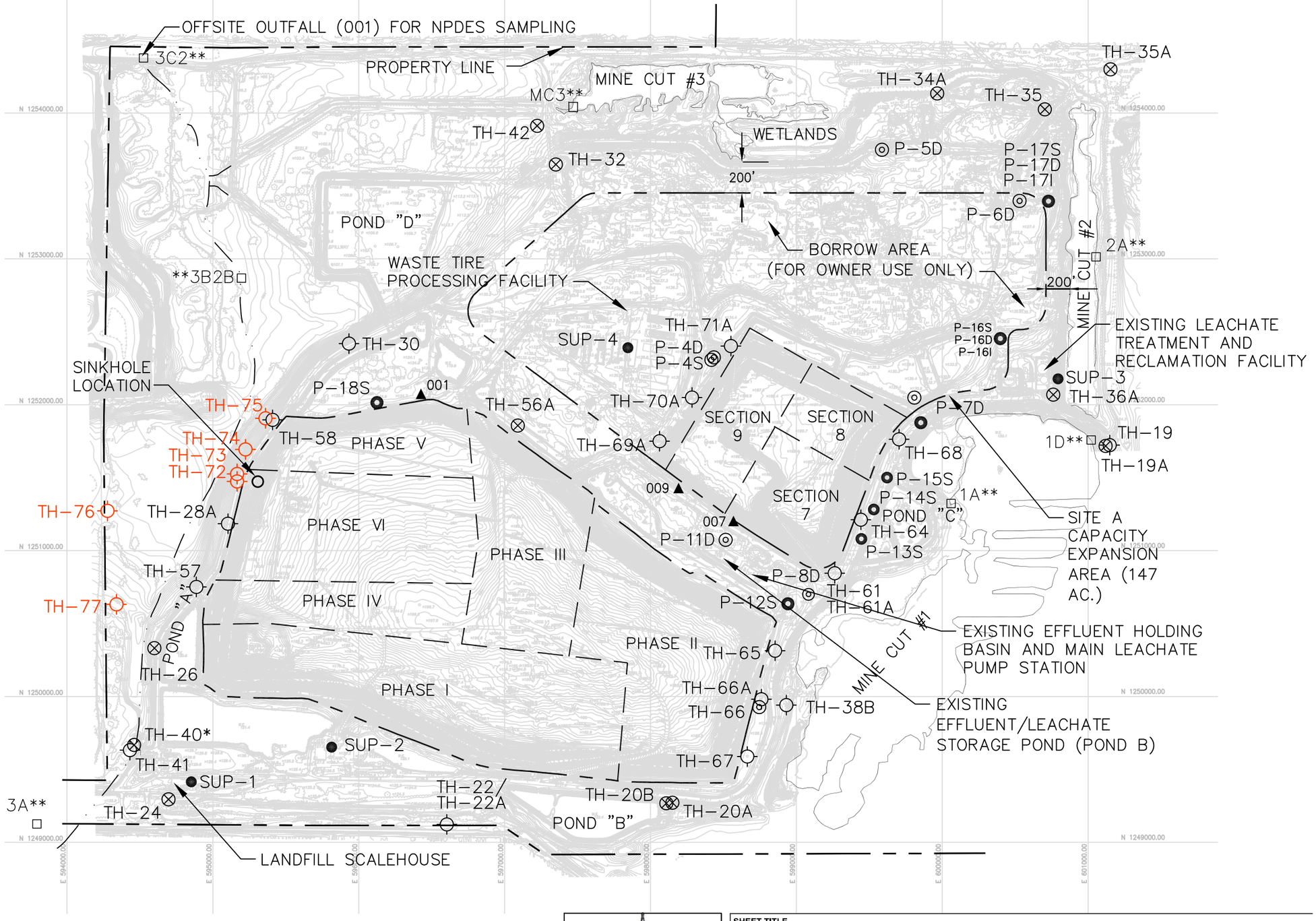
Enclosed for your review please find a site location map depicting the location of the monitoring wells sampled, the water quality data summary table for this sampling event, a groundwater elevation data table, groundwater contour and flow diagrams for the surficial and upper Floridan / Limestone aquifers, the historical data summary tables for the wells sampled this month, and the complete analytical data report from our contracted laboratory, Test America, Inc. Should you have any questions or require any additional information please feel free to call me at (813) 663-3221.

Respectfully submitted,

David S. Adams 7/31/2014

David S. Adams, P.G
Environmental Manager
Public Utilities Department

xc: John Lyons, Director, Public Works Department
Kim Byer, Public Works Department, Solid Waste Division
Larry Ruiz, Public Works Department, Solid Waste Division
Jeff Greenwell, Public Utilities Department, Environmental Services
Richard Tedder, FDEP Tallahassee
Clark Moore, FDEP Tallahassee
Steve Morgan, FDEP, Southwest District
Andy Schipfer, EPC
Ernest Ely, WMI
Brian Miller, DOH
Rich Siemering, HDR
Joe O'Neill, CDS



N

GRAPHIC SCALE

0 175 350 700

SCALE IN FEET
1"=700'

LEGEND

001 ▲ LEACHATE SAMPLING LOCATION
P-1S ◎ SHALLOW PIEZOMETER
P-1D ◎ DEEP PIEZOMETER
SUP-1 ● SUPPLY WELL
TH-32 ⊗ INACTIVE MONITORING WELL LOCATION AND DESIGNATION
P-8D ◎ PIEZOMETER TO MONITOR HYDRAULIC DIVIDE
1D □ SURFACE WATER MONITORING SITE LOCATION
TH-22A ⊗ MONITORING SITE LOCATION MONITOR WELL
* FLORIDAN AQUIFER
1A** STAFF GAUGE
TH-73 ⊗ MONITORING WELL SAMPLED AS PART OF IAMP

NOTES:
1. TOPOGRAPHICAL INFORMATION COMPLIED FROM EXISTING CONDITIONS SURVEY PERFORM BY PICKETT & ASSOCIATES DATED JAN 2013.

Hillsborough County
Florida

SHEET TITLE

IAMP WELL LOCATIONS
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

PROJECT NUMBER	REFERENCE SHEET
SCALE	DRAWING NAME
DATE: MAY. 2013	EXHIBIT NUMBER: 1

C:\pwworking\tpa\d0266713\Well Location Map.dwg, Plot, 5/20/2013 3:03:58 PM, lrodrigu

Southeast County Landfill
Laboratory Analytical Data
Upper Floridan Groundwater Monitoring Wells
June 3, 2014

GENERAL				MCL STANDARD
PARAMETERS	**TH-72**	**TH-76**	**TH-77**	
conductivity (umhos/cm) (field)	2,771	423	464	**NS**
dissolved oxygen (mg/l) (field)	0.34	0.3	0.27	**NS**
pH (field)	**6.45**	7.47	7.47	**(6.5 - 8.5)****
temperature (°C) (field)	23.46	22.82	23.49	**NS**
turbidity (NTU) (field)	0.96	16.8	0.88	**NS**
total dissolved solids (mg/l)	**1,400**	240	230	**500****
chloride (mg/l)	**570**	12	9.7	**250****
ammonia nitrogen (mg/l as N)	27	0.47	0.75 j3	**NS**
				MCL STANDARD
Metals: (mg/l)	**TH-72**	**TH-76**	**TH-77**	
arsenic	0.004 u	0.004 u	0.004 u	**0.01***
iron	**0.73**	**0.64**	0.19 i	**0.3****
sodium	**220**	20	17	**160***

Note: Ref. Groundwater Guidance Concentrations, FDEP 2012

MCL = Maximum Contaminant Level

BDL = Below Detection Limit

NTU = Nephelometric Turbidity Units

i = reported value is between the laboratory method detection limit and practical quantitation limit.

u = parameter was analyzed but not detected.

j3 = estimated value. Value may not be accurate. Spike recovery or RPD outside of criteria.

* = Primary Drinking Water Standard

** = Secondary Drinking Water Standard

*** = Groundwater Cleanup Target Level

1,400 Exceeds Standards

ug/l = micrograms per liter

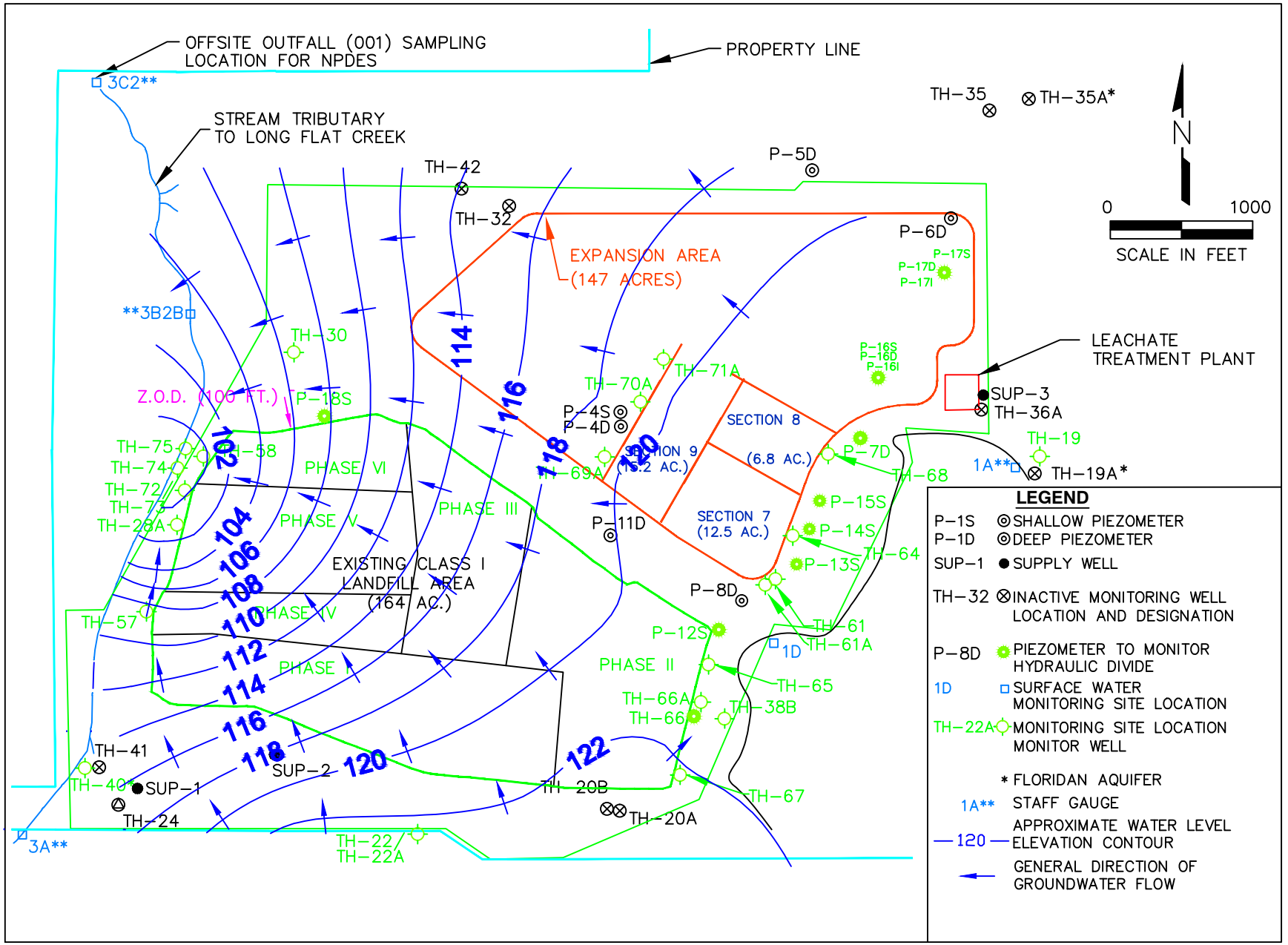
mg/l = milligrams per liter

NS = No Standard

Southeast County Landfill
Groundwater and Surface Water Elevations
June 2, 2014

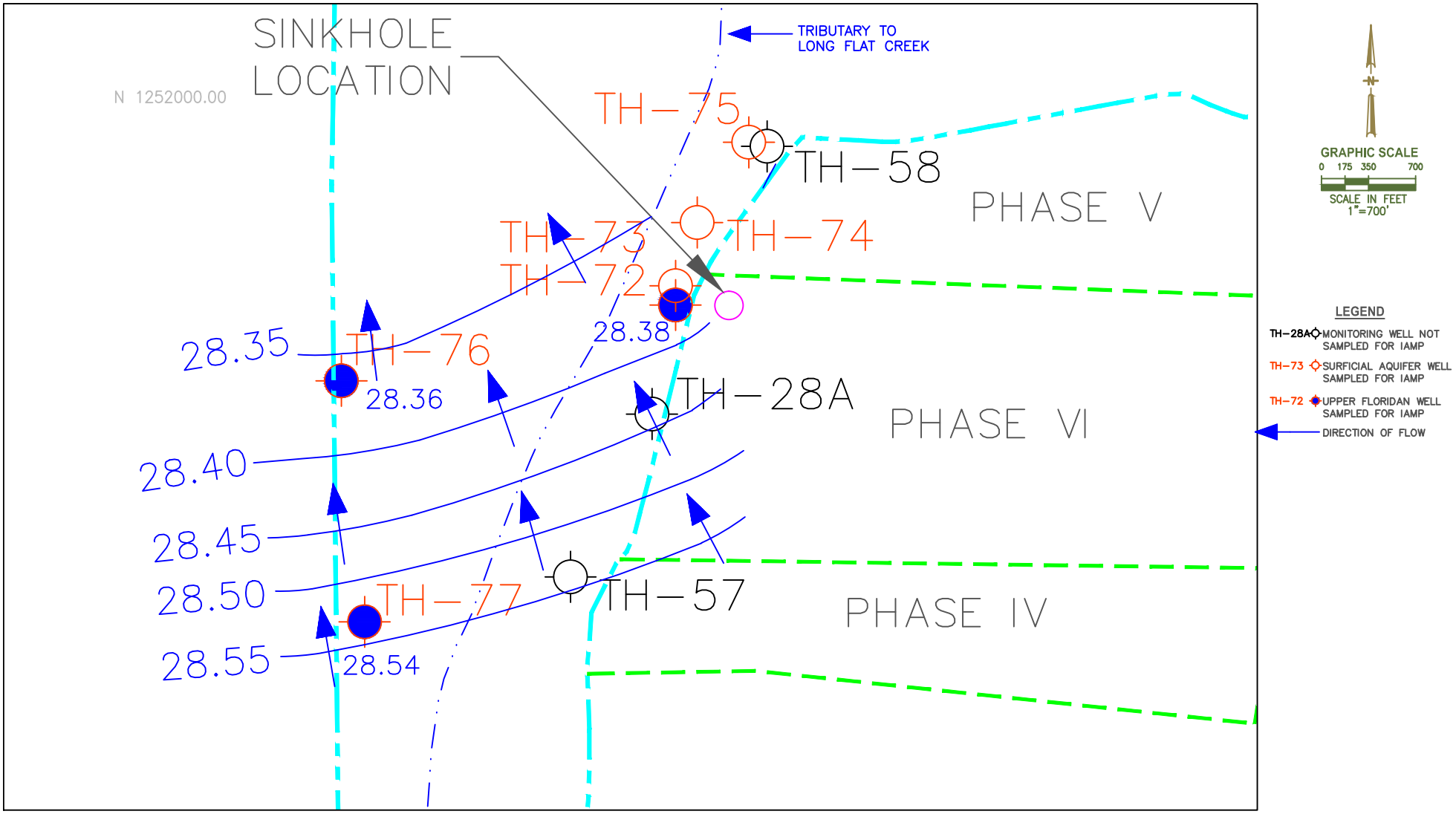
Measuring Point I.D.	T.O.C. Elevations (NGVD)	W.L. B.T.O.C.	W.L. (NGVD)	Time
P-4D	140.78	22.66	118.12	1:21 PM
P-4S	140.95	10.45	130.50	1:20 PM
P-5D	151.94	DRY	151.94	12:23 PM
P-6D-A	148.01	25.99	122.02	12:17 PM
P-7D	138.92	17.80	121.12	12:47 PM
P-8D	138.34	18.14	120.20	1:12 PM
P-11D	138.02	17.89	120.13	1:15 PM
P-12S	134.97	14.44	120.53	1:10 PM
P-13S	140.21	17.82	122.39	12:59 PM
P-14S	138.56	16.49	122.07	12:54 PM
P-15S	139.19	17.91	121.28	12:52 PM
P-16S	143.38	15.80	127.58	11:52 AM
P-16I	144.15	23.89	120.26	11:53 AM
P-16D	143.84	23.61	120.23	11:54 AM
P-17S	137.35	14.20	123.15	12:11 PM
P-17I	137.32	15.70	121.62	12:10 PM
P-17D	137.22	15.87	121.35	12:10 PM
P-18S	129.86	18.46	111.40	11:01 AM
P-19	133.36	12.65	120.71	12:19 PM
P-20	132.38	12.00	120.38	11:48 AM
P-21	122.79	2.55	120.24	11:32 AM
P-22	128.35	8.00	120.35	11:36 AM
P-23	143.13	23.35	119.78	11:40 AM
TH-19*	130.27	104.19	26.08	12:44 PM
TH-20A	131.86	9.09	122.77	1:57 PM
TH-20B	132.57	9.99	122.58	1:57 PM
TH-22	128.82	4.60	124.22	9:46 AM
TH-22A	129.27	5.24	124.03	9:47 AM
TH-24A	128.23	4.20	124.03	9:51 AM
TH-28A	131.10	27.84	103.26	2:05 PM
TH-30	128.88	23.96	104.92	11:06 AM
TH-32	129.90	15.09	114.81	10:54 AM
TH-35	145.98	28.25	117.73	12:30 PM
TH-36A	152.70	31.74	120.96	12:02 PM
TH-38A	130.68	10.22	120.46	1:49 PM
TH-38B	131.81	11.02	120.79	1:48 PM
TH-40*	124.99	99.03	25.96	10:03 AM
TH-41*	125.00	104.63	20.37	10:04 AM
TH-42*	116.74	77.80	38.94	10:51 AM
TH-57	128.36	18.89	109.47	2:09 PM
TH-58	127.88	28.01	99.87	11:12 AM
TH-61	138.73	17.15	121.58	1:26 AM
TH-61A	139.45	17.96	121.49	1:40 AM
TH-64	139.64	16.97	122.67	12:57 PM
TH-65	135.40	14.68	120.72	1:40 PM
TH-66	130.58	8.70	121.88	1:44 PM
TH-66A	130.66	9.07	121.59	1:43 PM
TH-67	129.51	5.11	124.40	1:53 PM
TH-68	140.01	18.32	121.69	1:25 PM
TH-69A	144.97	25.85	119.12	1:27 PM
TH-70A	146.63	26.89	119.74	1:25 PM
TH-71A	146.95	27.40	119.55	11:28 AM
TH-72*	130.96	102.58	28.38	11:15 AM
TH-73	131.07	30.83	100.24	11:14 AM
TH-74	109.08	9.43	99.65	2:14 PM
TH-75	106.92	7.73	99.19	2:16 PM
TH-76*	111.21	82.85	28.36	10:18 AM
TH-77*	119.88	91.34	28.54	10:14 AM
SW-3A	3.0'=125.53'	0.78	123.31	9:26 AM
SW-3B2B	3.0'=97.97'	1.72	96.69	10:25 AM
SW-3C2	6.0'=92.33'	1.60	87.93	2:29 PM
Mine Cut #1	4.0'=122.14'	2.40	120.54	1:02 PM
Mine Cut #2	6.0'=123.47'	2.65	120.12	12:39 PM
Mine Cut #3	4.0'=112.27'	2.50	110.77	10:48 AM
Mine Cut #4	5.0'=97.54'	1.62	94.16	10:44 AM

NGVD	**= National Geodetic Vertical Datum**		
T.O.C.	**= Top of Casing**		
B.T.O.C.	**= Below Top of Casing**		
*****	**= Floridan Well**		
ND	**= No Data - Sampling Location Dry**		
W.L.	**= Water Level**		



Southeast County Landfill

Groundwater Elevation Contour Diagram – June 2, 2014



JUNE 2014
UPPER FLORIDAN / LIMESTONE AQUIFER CONTOUR DIAGRAM
IN THE VICINITY OF THE FORMER SINKHOLE
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Tampa
6712 Benjamin Road
Suite 100
Tampa, FL 33634
Tel: (813)885-7427

TestAmerica Job ID: 660-60951-1
Client Project/Site: SELF- IAMP Monitoring Wells

For:
Hillsborough Co Public Utilities Dept
Environmental Services Group
Brandon Support Operations Complex
332 North Falkenburg Rd, 2nd Floor
Tampa, Florida 33619

Attn: David Adams

Authorized for release by:
6/24/2014 11:32:07 AM

Nancy Robertson, Project Manager II
(813)885-7427
nancy.robertson@testamericainc.com

Table of Contents

Sample Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
660-60951-1	BLANK FIELD	Ground Water	06/03/14 10:10	06/03/14 15:22
660-60951-2	DUPLICATE NOT BLANK	Ground Water	06/03/14 00:00	06/03/14 15:22
660-60951-3	TH-77	Water	06/03/14 10:53	06/03/14 15:22
660-60951-4	TH-76	Water	06/03/14 12:19	06/03/14 15:22
660-60951-5	TH-72	Water	06/03/14 13:37	06/03/14 15:22

Job ID: 660-60951-1

Laboratory: TestAmerica Tampa

Narrative

Job Narrative
660-60951-1

Comments
No additional comments.

Receipt
The samples were received on 6/3/2014 3:22 PM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 3.1° C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method 350.1: Blank Field result for ammonia was confirmed.

Method 650.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 333395 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.
The sample is flagged with J3.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

General Chemistry

Qualifier	Qualifier Description
U	Indicates that the compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J3	Estimated value; value may not be accurate. Spike recovery or RPD outside of criteria.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: BLANK FIELD — Lab Sample ID: 660-60951-1

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ammonia as N	0.035	I	0.050	0.026	mg/L	1		350.1	Total/NA

Client Sample ID: DUPLICATE NOT BLANK — Lab Sample ID: 660-60951-2

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.7		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	150	I	200	50	ug/L	1		6010B	Total Recoverable
Sodium	16		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.89		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	230		10	10	mg/L	1		SM 2540C	Total/NA

Client Sample ID: TH-77 — Lab Sample ID: 660-60951-3

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.7		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	190	I	200	50	ug/L	1		6010B	Total Recoverable
Sodium	17		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.75	J3	0.10	0.052	mg/L	2		350.1	Total/NA
Total Dissolved Solids	230		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.47				SU	1		Field Sampling	Total/NA
Field Temperature	23.49				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.27				mg/L	1		Field Sampling	Total/NA
Specific Conductance	464				uS/cm	1		Field Sampling	Total/NA
Turbidity	0.88				NTU	1		Field Sampling	Total/NA

Client Sample ID: TH-76 — Lab Sample ID: 660-60951-4

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		0.50	0.25	mg/L	1		300.0	Total/NA
Iron	640		200	50	ug/L	1		6010B	Total Recoverable
Sodium	20		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	0.47		0.050	0.026	mg/L	1		350.1	Total/NA
Total Dissolved Solids	240		10	10	mg/L	1		SM 2540C	Total/NA
Field pH	7.47				SU	1		Field Sampling	Total/NA
Field Temperature	22.82				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.30				mg/L	1		Field Sampling	Total/NA
Specific Conductance	423				uS/cm	1		Field Sampling	Total/NA
Turbidity	16.8				NTU	1		Field Sampling	Total/NA

Client Sample ID: TH-72 — Lab Sample ID: 660-60951-5

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	570		10	5.0	mg/L	20		300.0	Total/NA
Iron	730		200	50	ug/L	1		6010B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: TH-72 (Continued)

Lab Sample ID: 660-60951-5

Analyte	Result	Qualifier	PQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	220		0.50	0.31	mg/L	1		6010B	Total Recoverable
Ammonia as N	27		1.0	0.52	mg/L	20		350.1	Total/NA
Total Dissolved Solids	1400		25	25	mg/L	1		SM 2540C	Total/NA
Field pH	6.45				SU	1		Field Sampling	Total/NA
Field Temperature	23.46				Degrees C	1		Field Sampling	Total/NA
Oxygen, Dissolved	0.34				mg/L	1		Field Sampling	Total/NA
Specific Conductance	2771				uS/cm	1		Field Sampling	Total/NA
Turbidity	0.96				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: BLANK FIELD
Date Collected: 06/03/14 10:10
Date Received: 06/03/14 15:22

Lab Sample ID: 660-60951-1
Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.25	U	0.50	0.25	mg/L			06/06/14 16:50	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		06/04/14 08:11	06/06/14 10:44	1
Iron	50	U	200	50	ug/L		06/04/14 08:11	06/06/14 10:44	1
Sodium	0.31	U	0.50	0.31	mg/L		06/04/14 08:11	06/06/14 10:44	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	**0.035**	**I**	0.050	0.026	mg/L			06/10/14 08:42	1
Total Dissolved Solids	5.0	U	5.0	5.0	mg/L			06/04/14 13:18	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: DUPLICATE NOT BLANK
Date Collected: 06/03/14 00:00
Date Received: 06/03/14 15:22

Lab Sample ID: 660-60951-2
Matrix: Ground Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.7**		0.50	0.25	mg/L			06/06/14 19:55	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		06/04/14 08:11	06/06/14 10:48	1
Iron	**150**	**I**	200	50	ug/L		06/04/14 08:11	06/06/14 10:48	1
Sodium	**16**		0.50	0.31	mg/L		06/04/14 08:11	06/06/14 10:48	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	**0.89**		0.050	0.026	mg/L			06/10/14 08:42	1
Total Dissolved Solids	**230**		10	10	mg/L			06/04/14 13:18	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: TH-77
Date Collected: 06/03/14 10:53
Date Received: 06/03/14 15:22

Lab Sample ID: 660-60951-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.7		0.50	0.25	mg/L			06/06/14 19:08	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		06/04/14 08:11	06/06/14 10:51	1
Iron	190	I	200	50	ug/L		06/04/14 08:11	06/06/14 10:51	1
Sodium	17		0.50	0.31	mg/L		06/04/14 08:11	06/06/14 10:51	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.75	J3	0.10	0.052	mg/L			06/10/14 10:03	2
Total Dissolved Solids	230		10	10	mg/L			06/04/14 13:18	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.47				SU			06/03/14 10:53	1
Field Temperature	23.49				Degrees C			06/03/14 10:53	1
Oxygen, Dissolved	0.27				mg/L			06/03/14 10:53	1
Specific Conductance	464				uS/cm			06/03/14 10:53	1
Turbidity	0.88				NTU			06/03/14 10:53	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: TH-76
Date Collected: 06/03/14 12:19
Date Received: 06/03/14 15:22

Lab Sample ID: 660-60951-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		0.50	0.25	mg/L			06/06/14 20:25	1

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		06/04/14 08:11	06/06/14 10:55	1
Iron	640		200	50	ug/L		06/04/14 08:11	06/06/14 10:55	1
Sodium	20		0.50	0.31	mg/L		06/04/14 08:11	06/06/14 10:55	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.47		0.050	0.026	mg/L			06/10/14 11:21	1
Total Dissolved Solids	240		10	10	mg/L			06/04/14 13:18	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.47				SU			06/03/14 12:19	1
Field Temperature	22.82				Degrees C			06/03/14 12:19	1
Oxygen, Dissolved	0.30				mg/L			06/03/14 12:19	1
Specific Conductance	423				uS/cm			06/03/14 12:19	1
Turbidity	16.8				NTU			06/03/14 12:19	1

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: TH-72
Date Collected: 06/03/14 13:37
Date Received: 06/03/14 15:22

Lab Sample ID: 660-60951-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	570		10	5.0	mg/L			06/06/14 21:12	20

Method: 6010B - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		06/04/14 08:11	06/06/14 10:58	1
Iron	730		200	50	ug/L		06/04/14 08:11	06/06/14 10:58	1
Sodium	220		0.50	0.31	mg/L		06/04/14 08:11	06/06/14 10:58	1

General Chemistry

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	27		1.0	0.52	mg/L			06/10/14 11:07	20
Total Dissolved Solids	1400		25	25	mg/L			06/04/14 13:18	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	6.45				SU			06/03/14 13:37	1
Field Temperature	23.46				Degrees C			06/03/14 13:37	1
Oxygen, Dissolved	0.34				mg/L			06/03/14 13:37	1
Specific Conductance	2771				uS/cm			06/03/14 13:37	1
Turbidity	0.96				NTU			06/03/14 13:37	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-332819/29 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.25	U	0.50	0.25	mg/L			06/06/14 16:04	1

Lab Sample ID: LCS 680-332819/30 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			10.0	10.0		mg/L		100	90 - 110		

Lab Sample ID: LCSD 680-332819/31 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			10.0	9.99		mg/L		100	90 - 110	0	30

Lab Sample ID: 640-48079-D-1 MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	13		10.0	22.9		mg/L		102	80 - 120		

Lab Sample ID: 640-48079-D-1 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	13		10.0	23.0		mg/L		103	80 - 120	0	30

Lab Sample ID: 660-60951-4 MS — **Client Sample ID: TH-76**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	12		10.0	22.3		mg/L		101	80 - 120		

Lab Sample ID: 660-60951-4 MSD — **Client Sample ID: TH-76**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 332819

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12		10.0	22.3		mg/L		102	80 - 120	0	30

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 660-148740/1-A
Matrix: Water
Analysis Batch: 148828

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 148740

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.0	U	10	4.0	ug/L		06/04/14 08:11	06/06/14 09:32	1
Iron	50	U	200	50	ug/L		06/04/14 08:11	06/06/14 09:32	1
Sodium	0.31	U	0.50	0.31	mg/L		06/04/14 08:11	06/06/14 09:32	1

Lab Sample ID: LCS 660-148740/2-A
Matrix: Water
Analysis Batch: 148828

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 148740

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	1010		ug/L		101	80 - 120
Iron	1000	1040		ug/L		104	80 - 120
Sodium	10.0	10.3		mg/L		103	80 - 120

Lab Sample ID: 660-60934-A-1-B MS
Matrix: Water
Analysis Batch: 148828

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 148740

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	9.1	I	1000	1020		ug/L		101	80 - 120
Iron	50	U	1000	1000		ug/L		100	80 - 120
Sodium	2.6		10.0	12.5		mg/L		100	80 - 120

Lab Sample ID: 660-60934-A-1-C MSD
Matrix: Water
Analysis Batch: 148828

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 148740

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	9.1	I	1000	1010		ug/L		100	80 - 120	1	20
Iron	50	U	1000	1030		ug/L		103	80 - 120	3	20
Sodium	2.6		10.0	12.4		mg/L		98	80 - 120	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 680-333395/5
Matrix: Water
Analysis Batch: 333395

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	0.026	U	0.050	0.026	mg/L			06/09/14 18:30	1

Lab Sample ID: LCS 680-333395/4
Matrix: Water
Analysis Batch: 333395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	1.00	1.01		mg/L		101	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 660-60951-3 MS — **Client Sample ID: TH-77**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 333395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	0.75	J3	2.00	1.94	J3	mg/L		59	90 - 110

Lab Sample ID: 660-60951-3 MSD — **Client Sample ID: TH-77**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 333395

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia as N	0.75	J3	2.00	1.91	J3	mg/L		58	90 - 110	1	30

Lab Sample ID: 660-60951-4 DU — **Client Sample ID: TH-76**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 333395

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia as N	0.47		0.472		mg/L		1	30

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 660-148762/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 148762

Analyte	MB Result	MB Qualifier	PQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	5.0	U	5.0	5.0	mg/L			06/04/14 13:18	1

Lab Sample ID: LCS 660-148762/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 148762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	10000	9870		mg/L		99	80 - 120

Lab Sample ID: 660-60951-4 DU — **Client Sample ID: TH-76**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 148762

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	240		248		mg/L		5	20

HPLC/IC

Analysis Batch: 332819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
640-48079-D-1 MS	Matrix Spike	Total/NA	Water	300.0	
640-48079-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
660-60951-1	BLANK FIELD	Total/NA	Ground Water	300.0	
660-60951-2	DUPLICATE NOT BLANK	Total/NA	Ground Water	300.0	
660-60951-3	TH-77	Total/NA	Water	300.0	
660-60951-4	TH-76	Total/NA	Water	300.0	
660-60951-4 MS	TH-76	Total/NA	Water	300.0	
660-60951-4 MSD	TH-76	Total/NA	Water	300.0	
660-60951-5	TH-72	Total/NA	Water	300.0	
LCS 680-332819/30	Lab Control Sample	Total/NA	Water	300.0	
LCSD 680-332819/31	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 680-332819/29	Method Blank	Total/NA	Water	300.0	

Metals

Prep Batch: 148740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60934-A-1-B MS	Matrix Spike	Total Recoverable	Water	3005A	
660-60934-A-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	3005A	
660-60951-1	BLANK FIELD	Total Recoverable	Ground Water	3005A	
660-60951-2	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	3005A	
660-60951-3	TH-77	Total Recoverable	Water	3005A	
660-60951-4	TH-76	Total Recoverable	Water	3005A	
660-60951-5	TH-72	Total Recoverable	Water	3005A	
LCS 660-148740/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 660-148740/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 148828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60934-A-1-B MS	Matrix Spike	Total Recoverable	Water	6010B	148740
660-60934-A-1-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	6010B	148740
660-60951-1	BLANK FIELD	Total Recoverable	Ground Water	6010B	148740
660-60951-2	DUPLICATE NOT BLANK	Total Recoverable	Ground Water	6010B	148740
660-60951-3	TH-77	Total Recoverable	Water	6010B	148740
660-60951-4	TH-76	Total Recoverable	Water	6010B	148740
660-60951-5	TH-72	Total Recoverable	Water	6010B	148740
LCS 660-148740/2-A	Lab Control Sample	Total Recoverable	Water	6010B	148740
MB 660-148740/1-A	Method Blank	Total Recoverable	Water	6010B	148740

General Chemistry

Analysis Batch: 148762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60951-1	BLANK FIELD	Total/NA	Ground Water	SM 2540C	
660-60951-2	DUPLICATE NOT BLANK	Total/NA	Ground Water	SM 2540C	
660-60951-3	TH-77	Total/NA	Water	SM 2540C	
660-60951-4	TH-76	Total/NA	Water	SM 2540C	
660-60951-4 DU	TH-76	Total/NA	Water	SM 2540C	
660-60951-5	TH-72	Total/NA	Water	SM 2540C	
LCS 660-148762/2	Lab Control Sample	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 148762 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 660-148762/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 333395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60951-1	BLANK FIELD	Total/NA	Ground Water	350.1	
660-60951-2	DUPLICATE NOT BLANK	Total/NA	Ground Water	350.1	
660-60951-3	TH-77	Total/NA	Water	350.1	
660-60951-3 MS	TH-77	Total/NA	Water	350.1	
660-60951-3 MSD	TH-77	Total/NA	Water	350.1	
660-60951-4	TH-76	Total/NA	Water	350.1	
660-60951-4 DU	TH-76	Total/NA	Water	350.1	
660-60951-5	TH-72	Total/NA	Water	350.1	
LCS 680-333395/4	Lab Control Sample	Total/NA	Water	350.1	
MB 680-333395/5	Method Blank	Total/NA	Water	350.1	

Field Service / Mobile Lab

Analysis Batch: 148792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
660-60951-3	TH-77	Total/NA	Water	Field Sampling	
660-60951-4	TH-76	Total/NA	Water	Field Sampling	
660-60951-5	TH-72	Total/NA	Water	Field Sampling	

Client Sample ID: BLANK FIELD

Lab Sample ID: 660-60951-1

Date Collected: 06/03/14 10:10

Matrix: Ground Water

Date Received: 06/03/14 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	332819	06/06/14 16:50	PAT	TAL SAV
Total Recoverable	Prep	3005A			148740	06/04/14 08:11	ALQ	TAL TAM
Total Recoverable	Analysis	6010B		1	148828	06/06/14 10:44	GAF	TAL TAM
Total/NA	Analysis	350.1		1	333395	06/10/14 08:42	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	148762	06/04/14 13:18	TKO	TAL TAM

Client Sample ID: DUPLICATE NOT BLANK

Lab Sample ID: 660-60951-2

Date Collected: 06/03/14 00:00

Matrix: Ground Water

Date Received: 06/03/14 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	332819	06/06/14 19:55	PAT	TAL SAV
Total Recoverable	Prep	3005A			148740	06/04/14 08:11	ALQ	TAL TAM
Total Recoverable	Analysis	6010B		1	148828	06/06/14 10:48	GAF	TAL TAM
Total/NA	Analysis	350.1		1	333395	06/10/14 08:42	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	148762	06/04/14 13:18	TKO	TAL TAM

Client Sample ID: TH-77

Lab Sample ID: 660-60951-3

Date Collected: 06/03/14 10:53

Matrix: Water

Date Received: 06/03/14 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	332819	06/06/14 19:08	PAT	TAL SAV
Total Recoverable	Prep	3005A			148740	06/04/14 08:11	ALQ	TAL TAM
Total Recoverable	Analysis	6010B		1	148828	06/06/14 10:51	GAF	TAL TAM
Total/NA	Analysis	350.1		2	333395	06/10/14 10:03	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	148762	06/04/14 13:18	TKO	TAL TAM
Total/NA	Analysis	Field Sampling		1	148792	06/03/14 10:53	FS	TAL TAM

Client Sample ID: TH-76

Lab Sample ID: 660-60951-4

Date Collected: 06/03/14 12:19

Matrix: Water

Date Received: 06/03/14 15:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	332819	06/06/14 20:25	PAT	TAL SAV
Total Recoverable	Prep	3005A			148740	06/04/14 08:11	ALQ	TAL TAM
Total Recoverable	Analysis	6010B		1	148828	06/06/14 10:55	GAF	TAL TAM
Total/NA	Analysis	350.1		1	333395	06/10/14 11:21	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	148762	06/04/14 13:18	TKO	TAL TAM
Total/NA	Analysis	Field Sampling		1	148792	06/03/14 12:19	FS	TAL TAM

Lab Chronicle

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Client Sample ID: TH-72
Date Collected: 06/03/14 13:37
Date Received: 06/03/14 15:22

Lab Sample ID: 660-60951-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20	332819	06/06/14 21:12	PAT	TAL SAV
Total Recoverable	Prep	3005A			148740	06/04/14 08:11	ALQ	TAL TAM
Total Recoverable	Analysis	6010B		1	148828	06/06/14 10:58	GAF	TAL TAM
Total/NA	Analysis	350.1		20	333395	06/10/14 11:07	JME	TAL SAV
Total/NA	Analysis	SM 2540C		1	148762	06/04/14 13:18	TKO	TAL TAM
Total/NA	Analysis	Field Sampling		1	148792	06/03/14 13:37	FS	TAL TAM

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Method Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
6010B	Metals (ICP)	SW846	TAL TAM
350.1	Nitrogen, Ammonia	MCAWW	TAL SAV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL TAM
Field Sampling	Field Sampling	EPA	TAL TAM

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Certification Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Laboratory: TestAmerica Tampa

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E84282	06-30-14 *

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-15
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-14 *
Arkansas DEQ	State Program	6	88-0692	01-31-15
California	NELAP	9	3217CA	07-31-14 *
Colorado	State Program	8	N/A	12-31-14
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14 *
GA Dept. of Agriculture	State Program	4	N/A	06-30-14 *
Georgia	State Program	4	N/A	06-30-14 *
Georgia	State Program	4	803	06-30-14 *
Guam	State Program	9	09-005r	04-16-15
Hawaii	State Program	9	N/A	06-30-14 *
Illinois	NELAP	5	200022	11-30-14
Indiana	State Program	5	N/A	06-30-14 *
Iowa	State Program	7	353	07-01-15
Kentucky (DW)	State Program	4	90084	12-31-14
Kentucky (UST)	State Program	4	18	02-28-15
Louisiana	NELAP	6	30690	06-30-14 *
Louisiana (DW)	NELAP	6	LA140023	12-31-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-14
Massachusetts	State Program	1	M-GA006	06-30-14 *
Michigan	State Program	5	9925	06-30-14 *
Mississippi	State Program	4	N/A	06-30-14 *
Montana	State Program	8	CERT0081	01-01-15
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14 *
New Jersey	NELAP	2	GA769	06-30-14 *
New Mexico	State Program	6	N/A	06-30-14 *
New York	NELAP	2	10842	03-31-15
North Carolina DENR	State Program	4	269	12-31-14
North Carolina DHHS	State Program	4	13701	07-31-14 *
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-15
Puerto Rico	State Program	2	GA00006	12-31-14
South Carolina	State Program	4	98001	06-30-14 *
Tennessee	State Program	4	TN02961	06-30-14 *
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	06-11-17
Virginia	NELAP	3	460161	06-14-15
Washington	State Program	10	C805	06-10-15
West Virginia DEP	State Program	3	94	06-30-14 *
West Virginia DHHR	State Program	3	9950C	12-31-14

* Certification renewal pending - certification considered valid.

Certification Summary

Client: Hillsborough Co Public Utilities Dept
Project/Site: SELF- IAMP Monitoring Wells

TestAmerica Job ID: 660-60951-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14 *

* Certification renewal pending - certification considered valid.

Serial Number

6/24/2014

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

(✓) TestAmerica Tampa
6712 Benjamin Rd, Suite 100
Tampa, FL 33634
www.testamericainc.com
Phone: (813) 885 7427
Fax: (813) 885 7049

( ) Alternate Laboratory Name/Location:
Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION
SELF-IAMP Monitoring Wells		Lithia, FL
TESTAMERICA (LAB) PROJECT MANAGER	P.O NUMBER	CONTRACT NO
Nancy Robertson		
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
Michael Townsel	(813) 663-3222	(813) 274-6801
CLIENT NAME	CLIENT EMAIL	
Hills. County Public Utilities	townselm@hillsboroughcounty.org	
CLIENT ADDRESS		
332 North Falkenburg Road		
COMPANY CONTRACTING THIS WORK	SAMPLER'S SIGNATURE	

PAGE ____ OF ____

STANDARD REPORT DELIVERY ( )
DATE DUE ____
EXPEDITED REPORT DELIVERY (SURCHARGE) ( )
DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT...)	NUMBER OF CONTAINERS SUBMITTED: Ammonia-N (H2SO4)	TDS (ice)	Chloride (ice)	As, Fe, Na (HNO3)	REMARKS
6-3-14	10.10	FIELD BLANK	G	X				X	X	X	X	
	—	DUPLICATE						X	X	X	X	
	10.53	TH-77						X	X	X	X	
	12.19	TH-76						X	X	X	X	
↓	13.37	TH-72						X	X	X	X	

660-60951 Chain of Custody

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	6-3-14							
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
				6/3/14	15:22			

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES ( ) NO ( )	CUSTODY SEAL NO.	STL LOG NO.	LABORATORY REMARKS:
						2.6°C / 3.1°C CW-07

FCU036:12.20.00:2

Original - Return to Laboratory with Sample(s)

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME:	Southeast County Landfill IAMP	SITE LOCATION:	Lithia, FL
WELL NO:	Duplicate	SAMPLE ID:	
DATE:	6-3-14		

PURGING DATA

WELL DIAMETER (inches): N/A	TUBING DIAMETER (inches): N/A	WELL SCREEN INTERVAL DEPTH: — feet to — feet	STATIC DEPTH TO WATER (feet): N/A	PURGE PUMP TYPE OR BAILER: N/A

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): N/A	FINAL PUMP OR TUBING DEPTH IN WELL (feet): N/A	PURGING INITIATED AT: N/A	PURGING ENDED AT: N/A	TOTAL VOLUME PURGED (gallons): N/A

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

DUPLICATE

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: B = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: ANDREW BALLOON / ZACK PATTERSON	SAMPLER(S) SIGNATURE(S): Zack Patterson	SAMPLING INITIATED AT: N/A	SAMPLING ENDED AT: N/A
PUMP OR TUBING DEPTH IN WELL (feet): N/A	TUBING MATERIAL CODE: T	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP ~~Y~~ ~~N~~ Dedicated	TUBING ~~Y~~ ~~N~~ Dedicated	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

SEE COC FOR ANALYSIS

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene, **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Southeast County Landfill IAMP	SITE LOCATION:	
WELL NO: FIELD BLANK	SAMPLE ID:	DATE: 6-3-14

PURGING DATA

WELL DIAMETER (inches): N/A	TUBING DIAMETER (inches): N/A	WELL SCREEN INTERVAL DEPTH: — feet to — feet	STATIC DEPTH TO WATER (feet): N/A	PURGE PUMP TYPE OR BAILER: N/A

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): N/A	FINAL PUMP OR TUBING DEPTH IN WELL (feet): N/A	PURGING INITIATED AT: N/A	PURGING ENDED AT: N/A	TOTAL VOLUME PURGED (gallons): N/A

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

FIELD BLANK

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006, 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004, 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump, PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: ANDREW BALLOON / ZACK PATTERSON	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 10.10	SAMPLING ENDED AT: 10.21
PUMP OR TUBING DEPTH IN WELL (feet): N/A	TUBING MATERIAL CODE: T	FIELD-FILTERED: Y (N) Filtration Equipment Type	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: ~~PUMP Y N Dedicated~~ ~~TUBING Y N~~ (Dedicated)		DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

SEE COC FOR ANALYSIS

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump, RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME:	Southeast County Landfill IAMP	SITE LOCATION:	Lithia, Florida
WELL NO: TH-77	SAMPLE ID:	DATE:	6-3-14

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 0.5	WELL SCREEN INTERVAL DEPTH: 154.2 feet to 169.2 feet	STATIC DEPTH TO WATER (feet): 91.13	PURGE PUMP TYPE OR BAILER: DBP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)

= (169.2 feet − 91.13 feet) X .16 gallons/foot = 12.50 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 168.2	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 168.2	PURGING INITIATED AT: 10.05	PURGING ENDED AT: 10.53	TOTAL VOLUME PURGED (gallons): 19.2

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
10.37	12.8	12.8	.40	91.41	7.41	23.43	464	.29	1.23	NONE	NONE
10.45	3.2	16.0	.40	91.41	7.47	23.45	464	.28	.88	↓	↓
10.53	3.2	19.2	.40	91.41	7.47	23.49	464	.27			

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: ANDREW BALLOON / ZACK PATTERSON	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 10.53	SAMPLING ENDED AT: 11.04
PUMP OR TUBING DEPTH IN WELL (feet): 168.2	TUBING MATERIAL CODE: T	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N (Dedicated)	TUBING Y N (Dedicated)	DUPLICATE: (Y) N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

SEE C.O.C. FOR SAMPLE ANALYSIS DBP= Dedicated bladder pump

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: Southeast County Landfill IAMP	SITE LOCATION: Lithia, Florida	
WELL NO: TH-76	SAMPLE ID:	DATE: 6-3-14

PURGING DATA

WELL DIAMETER (Inches): 2	TUBING DIAMETER (Inches): 0.5	WELL SCREEN INTERVAL DEPTH: 163.35 feet to 178.35 feet	STATIC DEPTH TO WATER (feet): 82.63	PURGE PUMP TYPE OR BAILER: DBP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (178.35 feet – 82.63 feet) X .16 gallons/foot = 15.32 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 177.35	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 177.35	PURGING INITIATED AT: 11.15	PURGING ENDED AT: 12.19	TOTAL VOLUME PURGED (gallons): 23.6

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. µS/cm	DISSOLVED OXYGEN mg/L	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
11.59	15.6	15.6	.40	83.12	7.48	22.78	416	.31	13.5	NONE	NONE
12.09	4	19.6	.40	83.12	7.48	22.83	419	.30	14.3	↓	↓
12.19	4	23.6	.40	83.12	7.47	22.82	423	.30	16.8	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: ANDREW BALLOON / ZACK PATTERSON	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 12.19	SAMPLING ENDED AT: 12.30
PUMP OR TUBING DEPTH IN WELL (feet): 177.35	TUBING MATERIAL CODE: T	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP Y N (Dedicated)	TUBING Y N (Dedicated)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)

SEE C.O.C. FOR SAMPLE ANALYSIS DBP = Dedicated bladder pump

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME:	Southeast County landfill IAMP	SITE LOCATION:	Lithia, FL
WELL NO:	TH-72	SAMPLE ID:	DATE: 6-3-14

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH:	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2	3/8	180 feet to 190 feet	102.32	BP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
1.54 = .08 gallons + (.0006 gallons/foot X 193 feet) + .30 gallons = 1.54 x 3 = 4.62 gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
189	189	13.12	13.37	

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP (°C)	COND (circle units) µmhos/cm or (µS/cm)	DISSOLVED OXYGEN (circle units) (mg/L) or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
13.31	4.75	4.75	.25	102.29	6.43	23.49	2769	.37	2.28	NONE	NONE
13.34	.75	5.50	.25	102.29	6.45	23.48	2770	.35	1.80	↓	↓
13.37	.75	6.25	.25	102.30	6.45	23.46	2771	.34	.96	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal /Ft.): 1/8" = 0.0006; 3/16" = 0.0014, 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010, 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump, ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
ANDREW BALLOON / ZACK PATTERSON		13.37	13.48

PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE:	FIELD-FILTERED: Y (N) Filtration Equipment Type	FILTER SIZE: ____ µm
189	T		

FIELD DECONTAMINATION: PUMP Y N (Dedicated) TUBING Y N (Dedicated) DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			

SEE COC FOR ANALYSIS

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene, PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump, RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 2009

TestAmerica Tampa
6712 Benjamin Road Suite 100
Tampa, FL 33634
Phone (813) 885-7427 Fax (813) 885-7049

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Robertson, Nancy	Carrier Tracking No(s):	COC No: 660-68676.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: nancy.robertson@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.				Job #: 660-60951-1

Address: 5102 LaRoche Avenue, ,	Due Date Requested: 6/13/2014	
City: Savannah	TAT Requested (days):	
State, Zip: GA, 31404		
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:	
Email:	WO #:	
Project Name: SELF MWs,SS,Private Wells,NPDES	Project #: 66003915	
Site: Southeast Landfill	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D/ Chloride	350.1/ Nitrogen, Ammonia	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
BLANK FIELD (660-60951-1)	6/3/14	10:10 Eastern		Water			X	X	2	
DUPLICATE NOT BLANK (660-60951-2)	6/3/14	Eastern		Water			X	X	2	
TH-77 (660-60951-3)	6/3/14	10:53 Eastern		Water			X	X	2	
TH-76 (660-60951-4)	6/3/14	12:19 Eastern		Water			X	X	2	
TH-72 (660-60951-5)	6/3/14	13:37 Eastern		Water			X	X	2	

Possible Hazard Identification *Unconfirmed*	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: RPRICE	Date/Time: 6-4-14 1414	Company	Received by: Walt
Relinquished by:	Date/Time:	Company	Received by:
Relinquished by:	Date/Time:	Company	Received by:

Received by: Walt	Date/Time: 6/5/14 9:24	Company TA		
Received by:	Date/Time:	Company		
Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.2

Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-60951-1

Login Number: 60951

List Source: TestAmerica Tampa

List Number: 1

Creator: Williams, Jennifer

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

Login Sample Receipt Checklist

Client: Hillsborough Co Public Utilities Dept

Job Number: 660-60951-1

Login Number: 60951
List Number: 2
Creator: West, Lauren H

List Source: TestAmerica Savannah
List Creation: 06/05/14 07:33 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	